Washington Co Lead Sites

Potosi, Richwoods and Old Mines

Washington County Missouri

Washington County Mining District Part of Old Lead Belt

Background

- Lead and barite mining in the area began in the 1700s
- Continuous lead mining began in 1721 shallow pits < 10'
- Deeper mining began in 1799 to depths of 100'
- By the late 1800s mining beyond 100' into dolomite bedrock
- Mining was reported to be extensive
- Barite mining became important after the Civil War and boomed in 1926 and was largely a rework of the lead mined areas

Background

- Barite mining continues today at one location
- The county has been divided into at least 5 mining districts and three are being considered here
  - Potosi
  - Old Mines
  - Richwoods
- Naturally occurring material is likely to be encountered
- Mine waste is difficult to identify since large tailings piles and flats are not frequently found
- Residential properties are located on historic mining, milling, and smelting sites or have been impacted by them

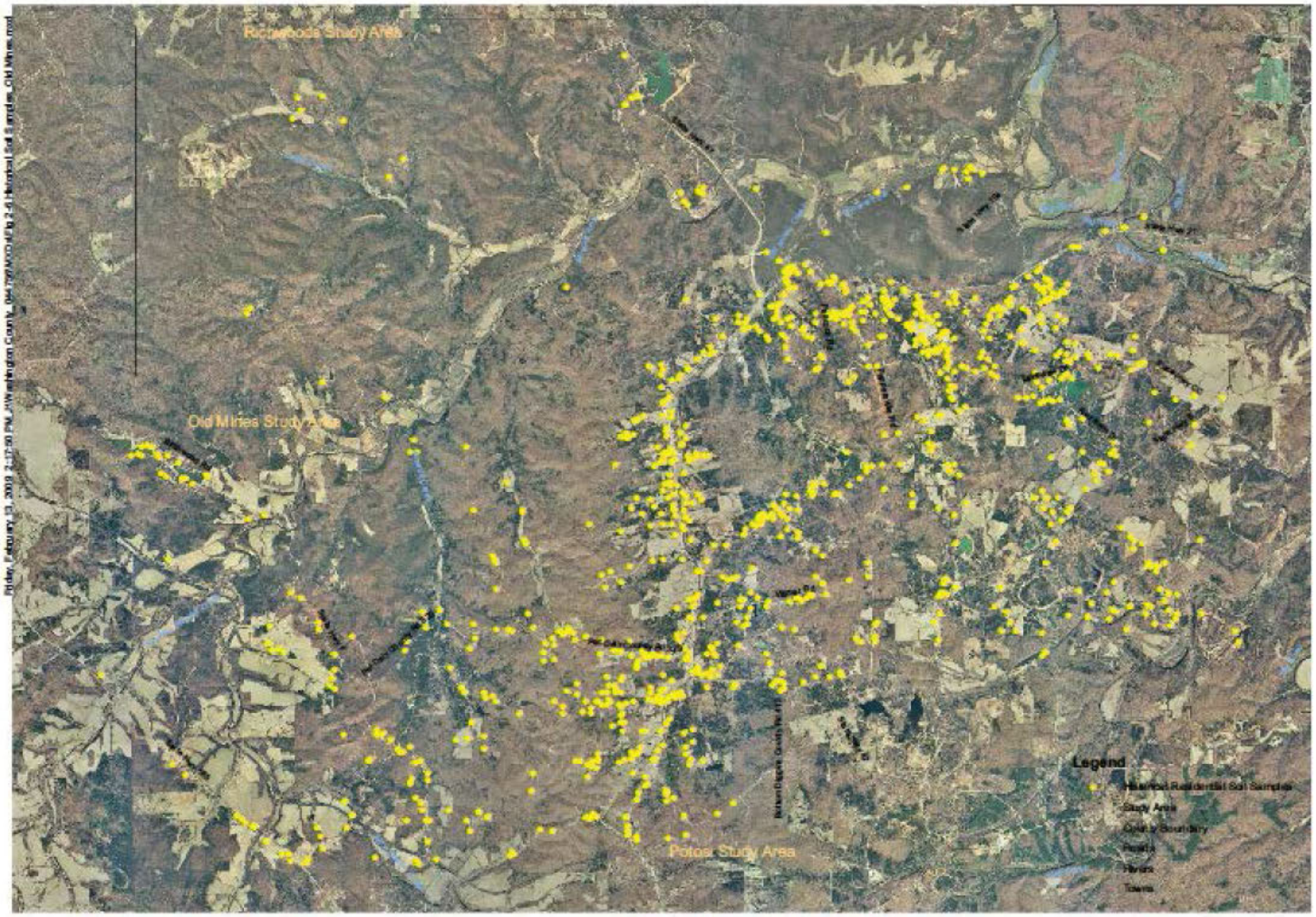
Actions for panel evaluation OU1

- Removal of lead and/or arsenic contaminated residential soil above 400 ppm and 22 ppm respectively to depths up to 2'
- Disposal of contaminated soils at the Indian Creek mine waste pile
- Provide for property restoration
- Provide interior dust response in the form of HEPA vacuum and health education

Removal program activities

- Potosi 1,685 screened , 578 over 400 ppm
- Richwoods 366 screened, 46 over 400 ppm
- Old Mines 980 screened, 226 over 400 ppm

Washington County soil sampling



Area-wide Historical Soil Sample Location Map
Old Mines Study Area
Washington County Lead District
Washington County, MO

Figure
2-6

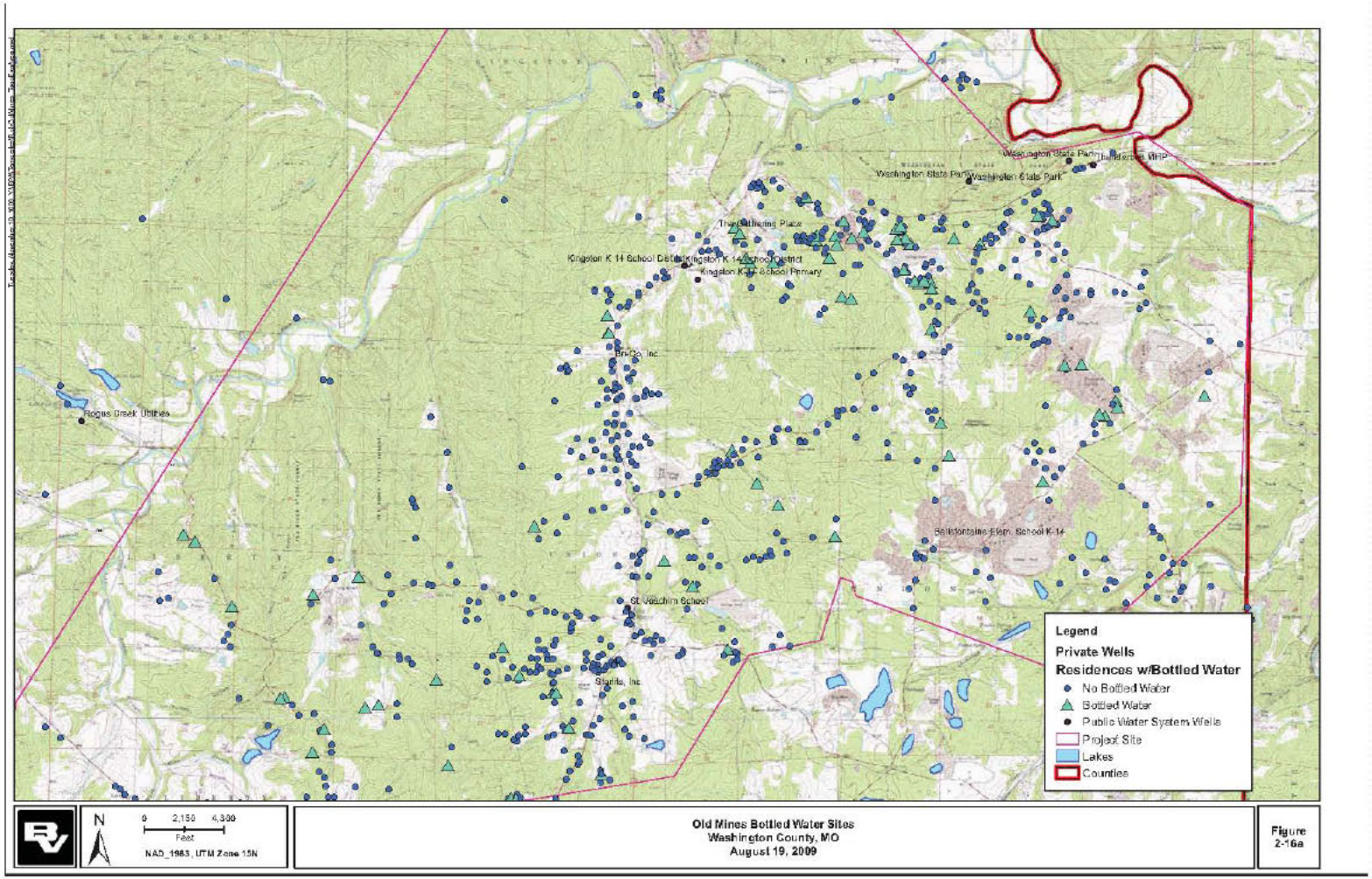
Removal program activities and remaining work

- Potosi 202 excavated; estimate 870 remain
- Richwoods 19 excavated; estimate 98 remain
- Old Mines 59 excavated; estimate 396 remain

Alternative water/future action OU2

- Potosi 126
- Richwoods 45
- Old Mines 104
- Water alternatives include bottled water, and water treatment systems.
- More residential water sampling
- Evaluating alternatives to bottled water, Carbon absorption and RO units

Water sampling locations



Risks to human populations

- Washington Co Pop 23,334 ; 1,545 under age 5
- Median Family Income $31,634
- 17.1% of Families below poverty level
- 26.3% of Families with children 5 years and younger below poverty level
- 1,545 children under age of 5 years
- 1,642 children 5 to 9 years of age

Risks to Human Populations

- Ingestion of lead primarily through hand to mouth behavior of children
- Direct exposure to contaminated surface soil at residential properties where young children reside
- Direct exposure to interior dust contaminated by exterior soil migration through track in by residents and pets and other mechanisms
- Concentrations above level that will cause an EBL level in a child (IEUBK)

Site and contaminant stability

- Lead generally binds to soil and good vegetative cover can reduce migration but lacks permanence
- Health education can be effective in reducing exposures but must be continuous with mobile and changing populations
- Lead contaminated soil adheres to hands and toys and is ingested by residents (especially children)
- Lead contaminated soil migrates to home interiors and contributes significantly to interior dust creating additional exposure
- No ICs for mine waste on contaminated areas

Contaminant characteristics

- COCs are Lead and to a lesser extent Arsenic and Cadmium
- All elements an do not breakdown to less harmful forms
- Biodegradation will not take place
- Adhere to soil particles and becomes mobile
- Phosphate treatment of soil was considered but ruled out due to studies by the Region at other sites

Programmatic considerations

- Local community and state are supportive of cleanup
- Exemption 5: AC/AWP
- Mining is still active in the region and some community members do not need for action
- Removal action has concluded and over 1300 residents have data showing soil lead hazards exist on their property
- Naturally occurring lead will need to be avoided during cleanup